



A.D. 1867, *8th JANUARY.* N° 55.

S P E C I F I C A T I O N

OF

WILLIAM EDWARD NEWTON.

PNEUMATIC APPARATUS FOR TREATING
DISEASE.

LONDON:

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,

PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY:

PUBLISHED AT THE GREAT SEAL PATENT OFFICE,

25, SOUTHAMPTON BUILDINGS, HOLBORN.

1867.



A.D. 1867, 8th JANUARY. N° 55.

Pneumatic Apparatus for Treating Disease.

LETTERS PATENT to William Edward Newton, of the Office for Patents, 66, Chancery Lane, in the County of Middlesex, Civil Engineer, for the Invention of "**AN IMPROVED PNEUMATIC APPARATUS FOR THE TREATMENT OF DISEASES IN AN ATTENUATED ATMOSPHERE.**"—A communication from abroad by George Hadfield, of Cincinnati, in the State of Ohio, United States of America.

Sealed the 7th May 1867, and dated the 8th January 1867.

PROVISIONAL SPECIFICATION left by the said William Edward Newton at the Office of the Commissioners of Patents, with his Petition, on the 8th January 1867.

I, WILLIAM EDWARD NEWTON, of the Office for Patents, 66, Chancery Lane, in the County of Middlesex, Civil Engineer, do hereby declare the nature of the said Invention for "**AN IMPROVED PNEUMATIC APPARATUS FOR THE TREATMENT OF DISEASES IN AN ATTENUATED ATMOSPHERE,**" to be as follows:—

This Invention consists in constructing a light portable apparatus easily put together and taken apart, and may be used for treating diseases in an
10 attenuated atmosphere.

The improved apparatus will obviate the necessity of using the bulky and inconvenient apparatus heretofore used for that purpose.

Newton's Improved Pneumatic Apparatus for Treatment of Diseases.

The apparatus consists of a large receiver intended to accommodate the entire body of the patient; it is oval in shape, and is composed of several parts or sections. The base is made of wood or metal, and has a rim about four inches high raised above and around it, in which is cut a small groove; into the bottom (with an air-tight joint) is inserted the exhaust pipe; on this base sets the conical case which is made in two parts. The framework is covered with tin, and is provided with a collar fitting around the neck of the patient. Over the whole is fitted an india-rubber cloak with an elastic collar, which fits closely around the chin and face of the patient, and at the base is bound close by a cord tied around the groove, thus rendering the entire receiver perfectly air-tight. 5 10

The instruments for local applications are made of thin metal having india-rubber rims where they are to be fitted against the skin and attached by a flexible tube to the air pump. The exhaust is attached to the instruments, and the case is drawn over the limb, either arm or leg, and the elastic band fits it closely to the limb and prevents the entrance of air. The air pump is connected with the base, and the patient is seated upon an adjustable stool. The two parts of the conical case are fitted upon the base, and over the whole is stretched the india-rubber cloak, which is fitted accurately about the face; the air is then gradually exhausted by means of the pump; experiment can alone show the extent to which this exhaustion should be carried, as one patient can bear far more than another, and even with the same patient it varies with atmospheric changes. Should it be carried too far the attendant by opening a stop-cock will at once afford the requisite relief. 15 20

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said William Edward Newton in the Great Seal Patent Office on the 8th July 1867. 25

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, WILLIAM EDWARD NEWTON, of the Office for Patents, 66, Chancery Lane, in the County of Middlesex, Civil Engineer, send greeting. 30

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Eighth day of January, in the year of our Lord One thousand eight hundred and sixty-seven, in the thirtieth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said William Edward Newton, Her special licence that I, the 35

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said William Edward Newton, my executors, administrators, and assigns, or such others as I, the said William Edward Newton, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time, and at all times thereafter during the term therein
5 expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for “AN IMPROVED PNEUMATIC APPARATUS FOR THE TREATMENT OF DISEASES IN AN ATTENUATED ATMOSPHERE,” being a communication to me from abroad, upon the condition (amongst others)
10 that I, the said William Edward Newton, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar
15 months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said William Edward Newton, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement, reference being had to the Drawing hereunto annexed,
20 and to the letters and figures marked thereon (that is to say):—

The beneficial results of treating certain disorders by exhaustion of air over the surface of the skin of the patient has long been recognised by the medical profession.

The present Invention consists in constructing a light portable apparatus
25 which can be easily put together and taken apart, and may be used for treating diseases in an attenuated atmosphere. The improved apparatus will obviate the necessity of using the bulky and inconvenient apparatus heretofore employed for that purpose.

Fig. 1 in the accompanying Drawing is a view of the entire apparatus when
30 fitted for use, parts being cut away to show the internal structure; Fig. 2 is a section of the air pump showing the arrangement of the pipes and stop-cocks for exhausting the air and re-admitting the same; Fig. 3 is a vertical section of the receiver; Fig. 4 to 8 inclusive show various small receivers intended to be employed in local applications.

35 A is the air pump of ordinary construction, except that it has two pipes C and D opening into one another and closed by stop-cocks; the pipe C communicates with the receiver by means of a screw coupling and pipe E; the pipe D opens into the air, and by opening its stop-cock the air is permitted to

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re-enter the receiver when desired. B is a large receiver intended to accommodate the entire body of the patient; this receiver is composed of several parts or sections. The base F is made of wood or metal; it is oval, and has a rim about four inches high raised above and around it, in which is cut a small groove f^1 ; into the bottom (with an air-tight joint) is inserted the pipe E, the base being raised on a block to permit this pipe to pass under it, or it may be inserted in the side; on this base sets the conical case B which is made in two parts, as shewn in Fig. 1; it has a base setting upon and having a rim fitting within the base f . The framework G is covered with tin H, and is provided with a collar fitting around the neck of the patient. Over the whole is fitted an india-rubber cloak I with an elastic collar which fits closely around the chin and face of the patient and comes down to the base, and is bound close by a cord tied around the groove f^1 , thus rendering the entire receiver perfectly air-tight.

The instruments for local applications, as shown in Figures 4 to 8 inclusive, are made of thin metal having india-rubber rims where they are to be fitted against the skin, and attached by a flexible tube to the air pump. Fig. 4 shews the form proper for attachment to the ear; Fig. 5, to the penis; Fig. 6, to the spinal column or other part of the body; Fig. 7, to the testicles; and Fig. 8, to the limbs. In Fig. 8 the exhaust is attached at L, and the case is drawn over the limb (either arm or leg), and the elastic band M fits it closely to the limb and prevents the entrance of air.

In operating with this improved portable apparatus, it may be taken apart for convenient transportation to the room of the patient. The air pump is connected with the base, and the patient is seated upon an adjustable stool; the two parts of the conical case B are fitted upon the base, and over the whole is stretched the india-rubber cloak which is made fast at f^1 , and fitted accurately about the face; the air is then gradually exhausted by means of the pump; experiment can alone shew the extent to which this exhaustion should be carried, as one patient can bear far more than another, and even with the same patient it varies with atmospheric changes. Should it be carried too far, the attendant by opening the stop-cock D will at once afford the requisite relief.

I do not limit myself to the conical shape for the receiver, as a box may be made (Fig. 9) of wood or metal of sufficient size to contain a person when seated, as shown in Fig. 10. This box is entered through an opening in its top which is surrounded by an upright flange α with a bead on its top; this opening is provided with a cover which fits snugly within the flange α , and is

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composed of two parts b and b^1 , which are united together by a sliding fastening consisting of two tenons or tongues on the portion b which enter holes prepared for the same in b^1 ; when these two cover sections are put together there is an opening between them marked d for the neck of the patient; after
5 the patient is seated in the box a cape e which forms part of a hood e^1 , encloses the head, leaving the face alone exposed for breathing, as shown in Figures 9 and 10. The cape e extends over the flanged opening, above described, and is drawn tightly around the flange a by means of a suitable band f , the ends of which are crossed after the parts are all adjusted in place
10 and affixed to the sliding plates g, g , which are moved by means of the screws h, h , as shewn in Fig. 9. By means of the band f and the head straps i, i , the box A can be made air-tight without any inconvenience to the patient; cushions j, j , serve to protect the ears from painful pressure by the head straps; the capes and hood should be made of india-rubber cloth. B is
15 a common air pump connected to the box A; C represents a dial plate graduated on its face, and K an index hand or pointer which is attached to a stem l that carries a pulley m , which is enclosed by the box D affixed on one side of the box A. Beneath the pulley m and at right angles to it is arranged a pulley n ; from the pulley m depends a cord o carrying a weight p ; this
20 cord passes over the pulley m and under the pulley n , and is attached to an elastic head E, which is drawn tightly over the flanges s that surround the opening F through the side of the box A. When the pump B is put in motion the pressure of the external air will force the elastic head E inwards, as shewn in dotted lines in Fig. 11, which will cause the index hand K to
25 move and show the pressure. Should the suction become too great the stop-cock G is to be opened and air allowed to enter the box A until the patient is relieved.

Having now described the Invention, which has been communicated to me by my foreign correspondent, and having explained the manner of carrying
30 the same into effect, I claim as the Invention secured to me by Letters Patent, as aforesaid,—

First, the portable apparatus, herein set forth, for treating diseases by exhaustion of the atmosphere, I claim particularly the arrangement of a receiver with a base F, and the adjustable frames G and sides H and flexible
35 india-rubber cloak I, constructed in the manner and for the purpose set forth.

Second, I claim the arrangement of an air pump A with two pipes C and D, the pipe E, and a receiver B, composed of separate parts, and combined in the manner and for the purpose set forth.

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Third, I claim the cape *e* in combination with the box A, for the purpose described.

Fourth, the arrangement for determining the pressure of the air in the apparatus.

In witness whereof, I, the said William Edward Newton, have hereunto 5
set my hand and seal, the Eighth day of July, in the year of our
Lord One thousand eight hundred and sixty-seven.

W. E. NEWTON. (L.S.)

Witness,

J. W. MOFFATT,
66, Chancery Lane.

10

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Printers to the Queen's most Excellent Majesty. 1867.

FIG. 2.

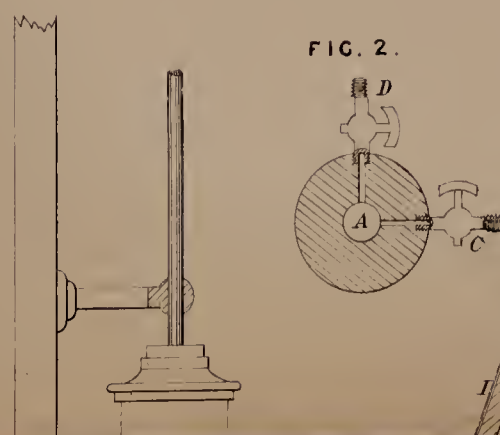


FIG. 1.

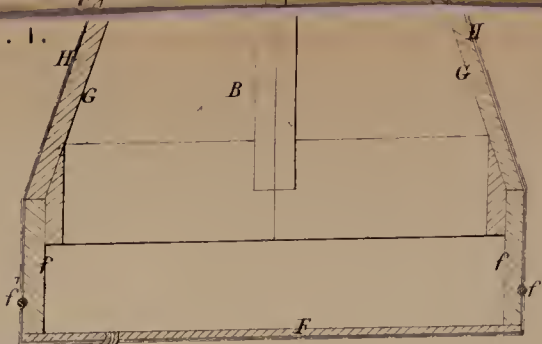


FIG. 8.



FIG. 4.



FIG. 5.



FIG. 7.

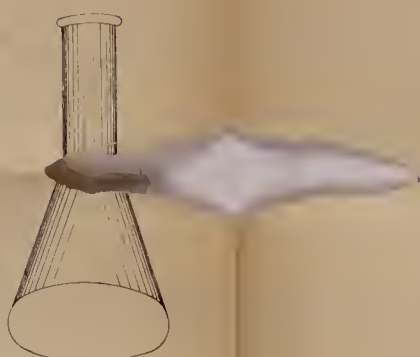
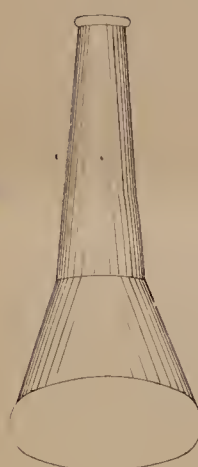


FIG. 7.



F I C . 9 .

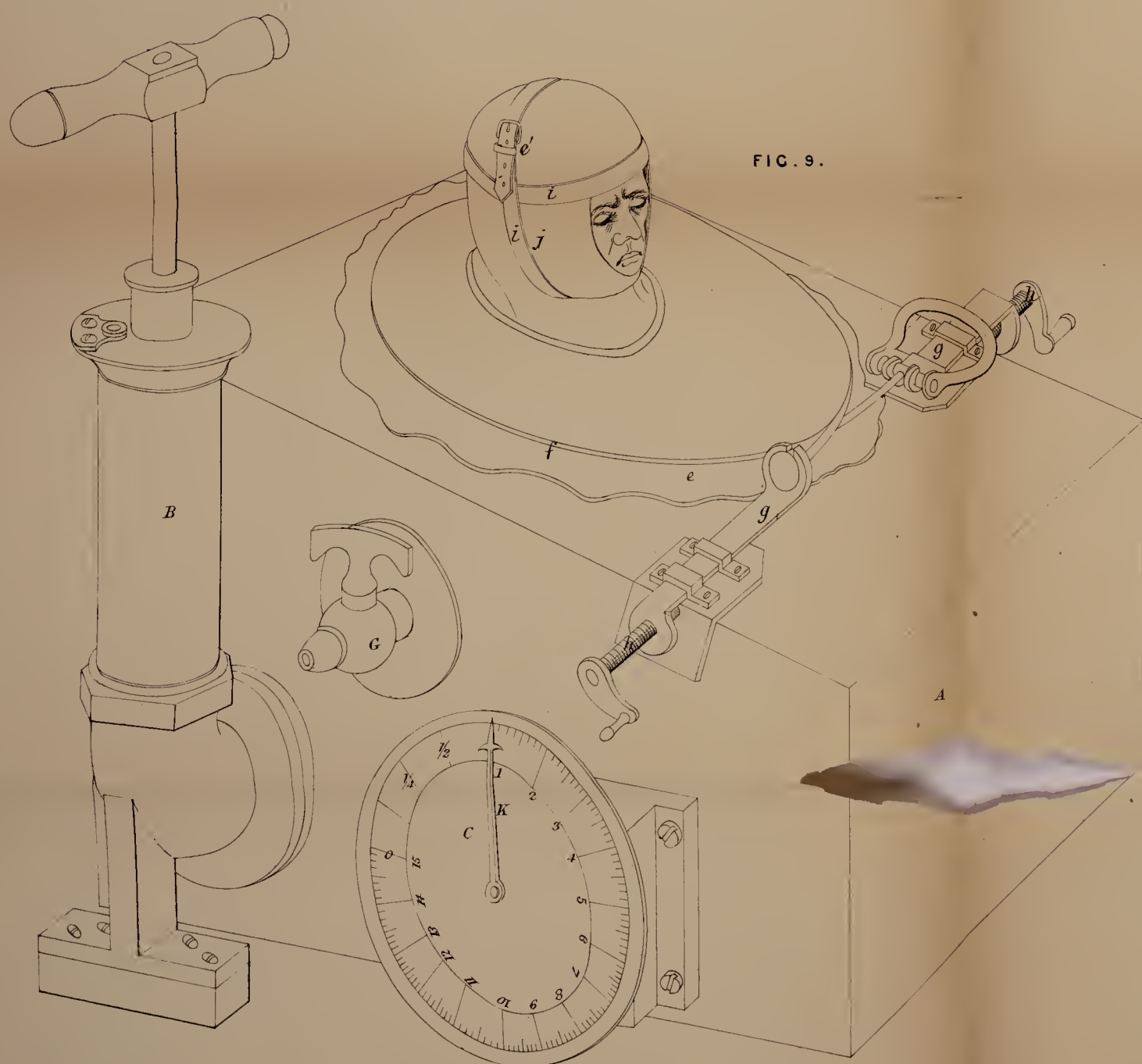
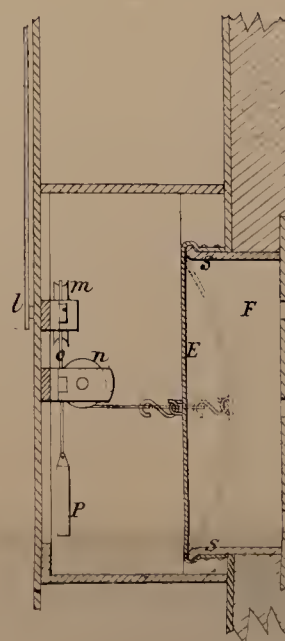


FIG. 10.



FIG. 11.



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